CyberData Corporation

Operations Guide for the 4-Port PoweredUSB 2.0 Hub

with External Power Supply and Dell Integrator Kit

Operations Guide for the 4-Port PoweredUSB 2.0 Hub with External Power Supply and Dell Integrator Kit
Rev C 2/06

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Company and product information at www.cyberdata.net

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Product overview

The CyberData 4-Port PoweredUSB 2.0 Hub provides a simple, affordable way to add up to four PoweredUSB ports to your PC. These additional ports are controlled by the PC's "standby" and "wake" commands. This add-on hub makes it easy to connect the PC to devices that require more than the 500mA of +5 volts supplied with the standard USB interface.

Product features

- 4 PoweredUSB ports
- One +24 volt up to 2.3A
- Three +12 volt up to 1.5A each
- Short circuit and over current protected
- Multiple power supply options
- Plug-n-Play installation
- Peripheral power controlled by PC standby and wake commands
- LED indicators for port power output and USB 2.0 status
- Two-year warranty

License note

The PoweredUSB controller board contains certain technology that is covered by an IBM® patent. CyberData Corporation is licensed with IBM to manufacture, and to sell or lease products that incorporate this technology. This license also permits other entities to resell or release these Cyberdata products after they have been purchased from CyberData.

Documentation note

Documentation for this product is released in an English language version only.

Contact CyberData

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Fax: 831-373-4193

Contact Sales

Sales (831) 373-2601 Extension 334

Contact Technical Support

Phone: 831-373-2601 Extension 333
Email: support@cyberdata.net
Product support page: http://www.cyberdata.net/support/4port20hub/

Purchase cables and connectors

For additional information about PoweredUSB cables and connectors, go to:
http://www.cyberdata.net/products/poweredusb/pusbcables.html

Warranty

CyberData warrants its product against defects in material or workmanship for a period of two years from the date of purchase. Should the product fail within the warranty period, CyberData will repair or replace the product free of charge. This warranty includes all parts and labor.

Should the product fail out-of-warranty, a flat rate repair charge of one half the product purchase price will be assessed. Repair costs for products that are in warranty, but damaged by improper modifications or abuse, will be charged at the out-of-warranty rate. Products returned to CyberData, both in and out-of-warranty, are shipped to CyberData at the expense of the customer. Charges for shipping repaired products back to the customer will be paid by CyberData.

Contact Service

If service is required, contact the CyberData Returned Materials Authorization (RMA) department at (831) 373-2601 Extension 136.

When returning a product to CyberData, an approved CyberData RMA number must be printed on the outside of the original shipping package. No product will be accepted for return without an approved RMA number. Send the product, in its original package, to the following address:

CyberData Corporation
2555 Garden Road
Monterey, CA 93940
Attention: RMA "your RMA number"

1 Installing and using the Hub

This chapter provides the instructions, illustrations, and background information you need to install, and begin working with the CyberData 4-Port PoweredUSB 2.0 Hub.

- "Product components list" on page 8
- "Product compatibility" on page 9
- "Installation options" on page 9
- "Connections" on page 11
- "Operation" on page 18
- "Port electrical specifications" on page 19

Product components list

The PoweredUSB Hub package includes these parts:

- (1) CyberData 4-Port PoweredUSB 2.0 Hub
- (1) Accessory Kit
  - (1) Dell Retail Integrator Bracket with mounting screws
  - (1) Dell Integrator twist lock
  - (1) Short USB 2.0 Hi-Speed host cable
  - (1) Host USB cable strain relief clamp
  - (1) *Operations Guide for the 4-Port PoweredUSB 2.0 Hub*

Figure 1: **CyberData 4-Port PoweredUSB 2.0 Hub—front view**

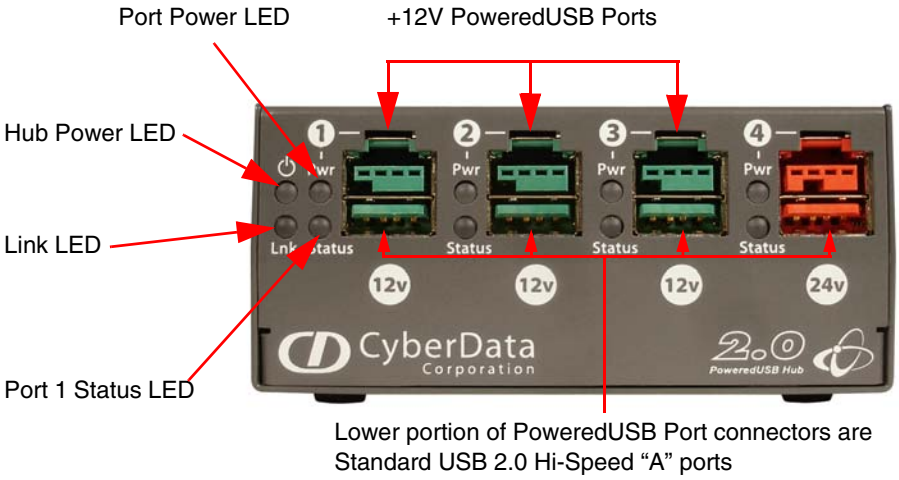
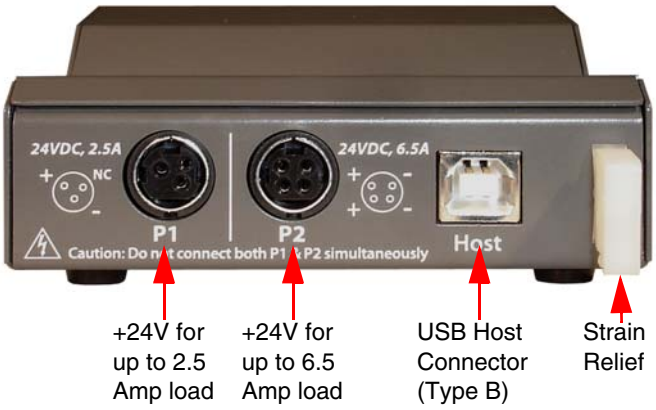


Figure 2: **CyberData 4-Port PoweredUSB 2.0 Hub—back view**



Product compatibility

The PoweredUSB Hub is compatible with the following operating systems and USB standards.

Operating systems	USB
Windows 2000 and XP	2.0 Standard
LINUX	PoweredUSB 0.8g
Mac OS-X	

Installation options

You have two options for installing the CyberData 4-Port PoweredUSB 2.0 Hub.

Stand-alone unit

The Hub is a tabletop unit with feet that sit on a flat surface.

Mounted on a Dell Retail Integrator

You can mount the unit onto the Dell Retail Integrator using the Mounting Bracket, screws, and twist lock described in the "Product components list" on page 8. To watch a video of this mounting process, go to http://www.cyberdata.net/support/4port20hub/.

To mount the Hub on a Dell Retail Integrator:

1. Use the screws supplied to attach the Mounting Bracket to the left side of the Hub.
2. Tilt the Hub to insert the Mounting Bracket feet into the holes in the Integrator plastic.
3. Lower the Hub into a position that is parallel with the Dell Retail Integrator.
4. Insert the plastic twist lock connector into the mounting hole, and twist it 90 degrees to lock the Hub in place.

Figure 3: **Dell Retail Integrator mounting—back view**

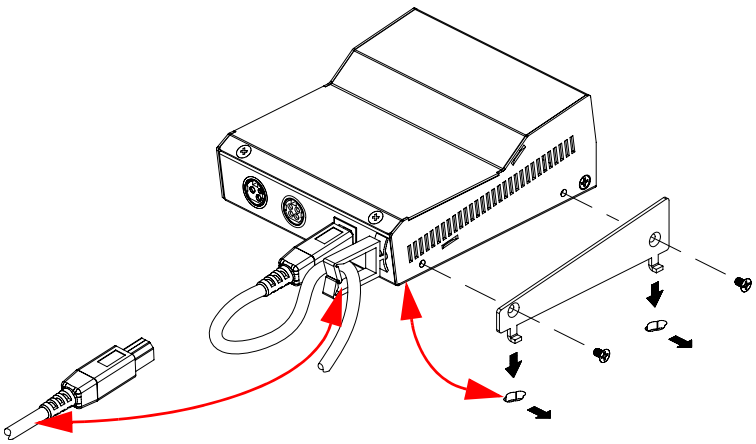
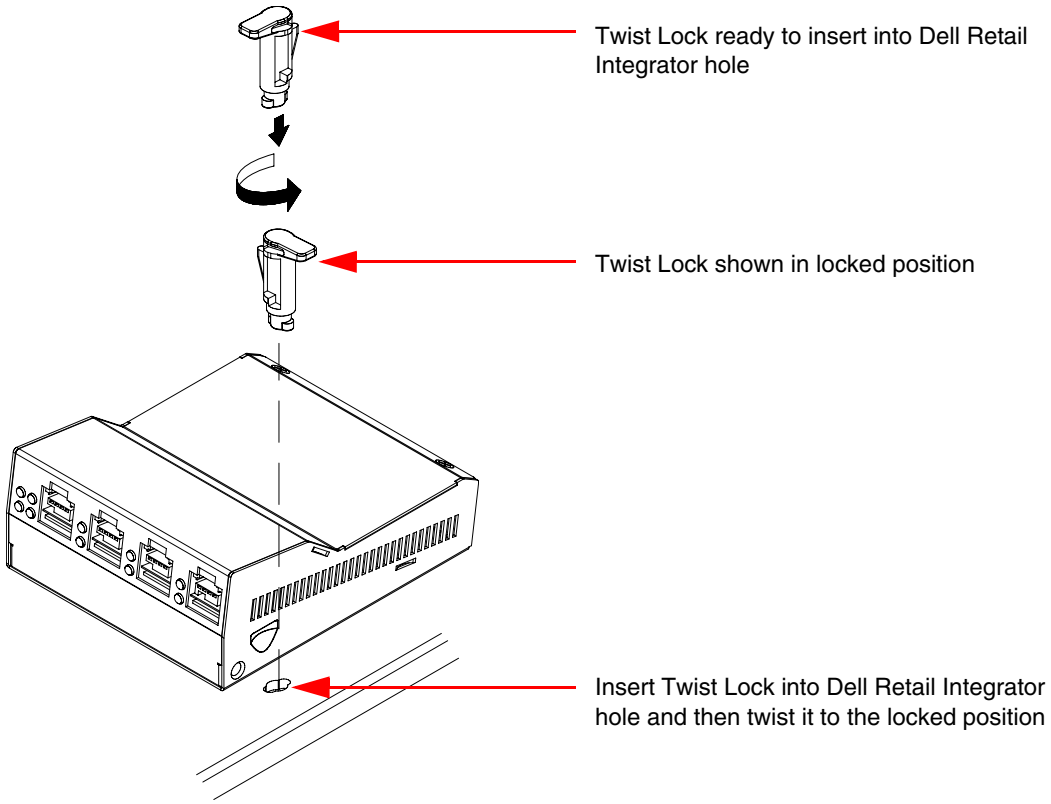
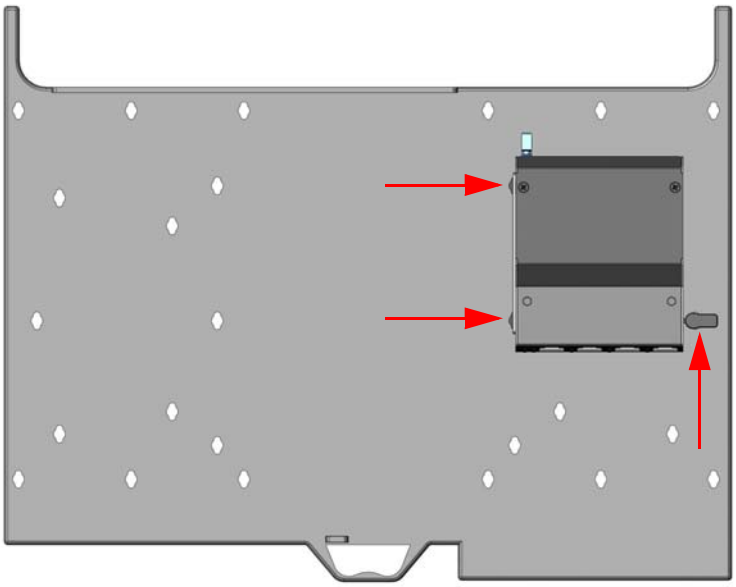

USB Host "B" connector and cable strain relief
Dell Mounting Bracket mounted to Hub and bracket feet inserted into Dell Retail Integrator holes

Figure 4: **Dell Retail Integrator mounting—front view**


Twist Lock ready to insert into Dell Retail Integrator hole
Twist Lock shown in locked position
Insert Twist Lock into Dell Retail Integrator hole and then twist it to the locked position



Connections

This following topics provide illustrations and information on connecting the CyberData 4-Port PoweredUSB 2.0 Hub to power supplies, the host, and peripheral devices.

- "Power supply" on page 11
- "Host connector" on page 12
- "PoweredUSB connections" on page 12
- "Connector color keys" on page 13
- "Peripherals connections to the CyberData 4-Port PoweredUSB 2.0 Hub" on page 14
- "Peripheral cable connection options" on page 15

Power supply

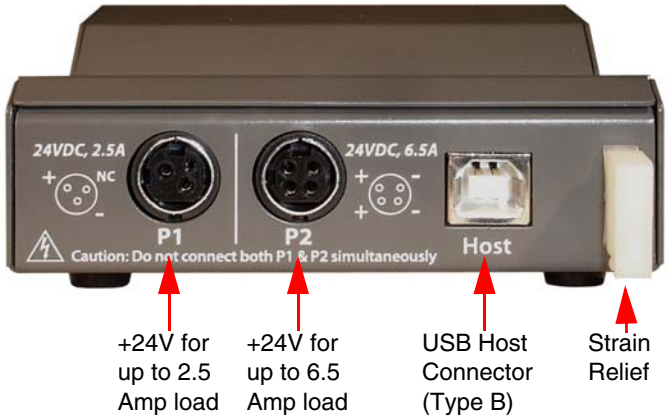
The PoweredUSB specification requires supplying +24V at 2.3A and +12V at 1.5A to each voltage designated port. These requirements are met only if the power supply has sufficient wattage for this amount of power.

The Epson PS180 brick and Dell printer power supply are examples of lower-cost alternate power supplies that can be used with this Hub and peripherals requiring less power. Two power plug receptacles are provided on the back of the CyberData 4-Port PoweredUSB 2.0 Hub to facilitate the use of alternate power supplies.

The three-pin connector is normally used for the Dell and Epson Bricks. The four-pin connector is used for a high-current power supply. See "Figure 6" and "Figure 9" for views of the Hub cable routing to the Dell Retail Integrator.

CAUTION The **P1** and **P2** DC input jacks on the back of this Hub are for *input only*. Do *not* plug power supplies into both input jacks simultaneously as equipment damage that might void the product warranty could occur.

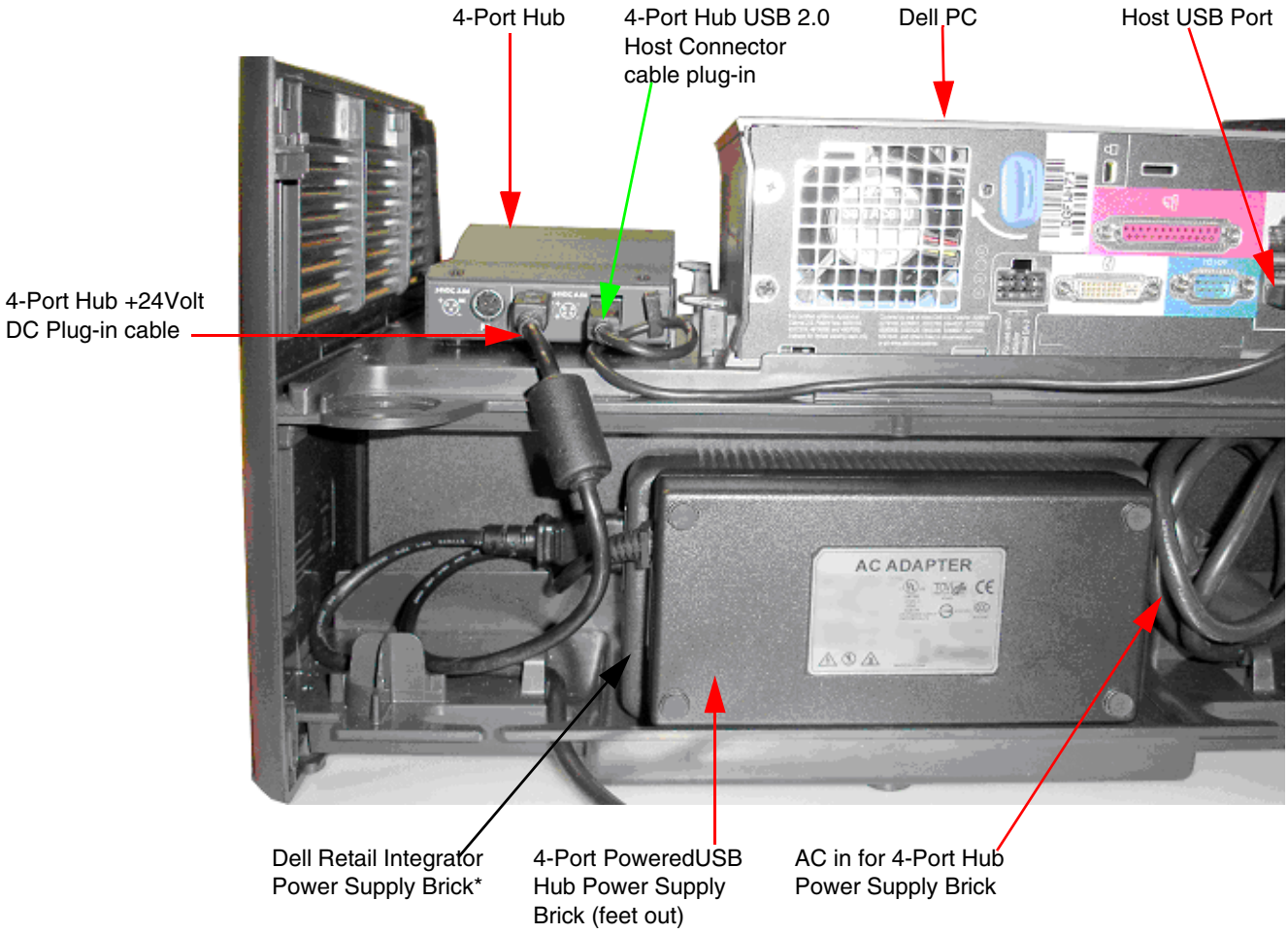
Figure 5: **Power connectors—back view**



Host connector

The connection to the host computer is achieved via a standard USB 2.0 certified Hi-Speed "A" to "B" cable that is included in the Accessory Kit, or with any equivalent USB 2.0 certified Hi-Speed cable. Refer to the "Product components list" on page 8 for information about the Accessory Kit. See "Figure 6" and "Figure 9" for views of the Hub cable routing to the Dell Retail Integrator.

Figure 6: **Dell Retail Integrator—Hub Cable Routing**


4-Port Hub
4-Port Hub USB 2.0 Host Connector cable plug-in
Dell PC
Host USB Port
4-Port Hub +24Volt DC Plug-in cable
AC ADAPTER
Dell Retail Integrator Power Supply Brick*
4-Port PoweredUSB Hub Power Supply Brick (feet out)
AC in for 4-Port Hub Power Supply Brick

*** Do not use the Dell Power supply Twist Locks to secure the Dell power supply**

PoweredUSB connections

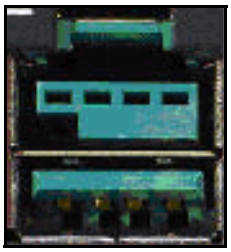
The PoweredUSB connections are standard USB "A" connectors with four extra pins to supply higher voltages. See "Figure 6"on page 12. The lower portion of the "A" connector on this product can be used alone, without the locking PoweredUSB connector.

Connector color keys

The PoweredUSB connectors are color keyed so that *only* the correct voltage cables can be installed.

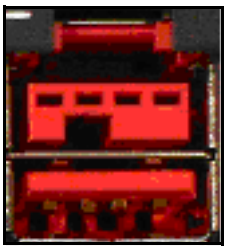
Figure 7: **Color-coding for Connectors**

Teal



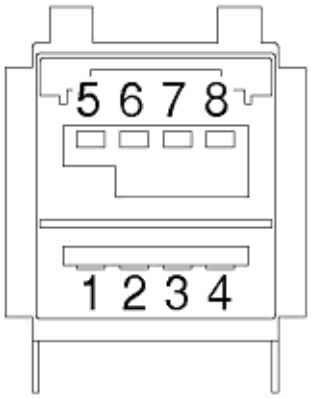
12 Volt Keyed
1.5A each
Ports 1,2, and 3

Red



24 Volt Keyed
2.3A
Ports 4

Figure 8: **USB PoweredUSB Socket Connector Pin Assignments**

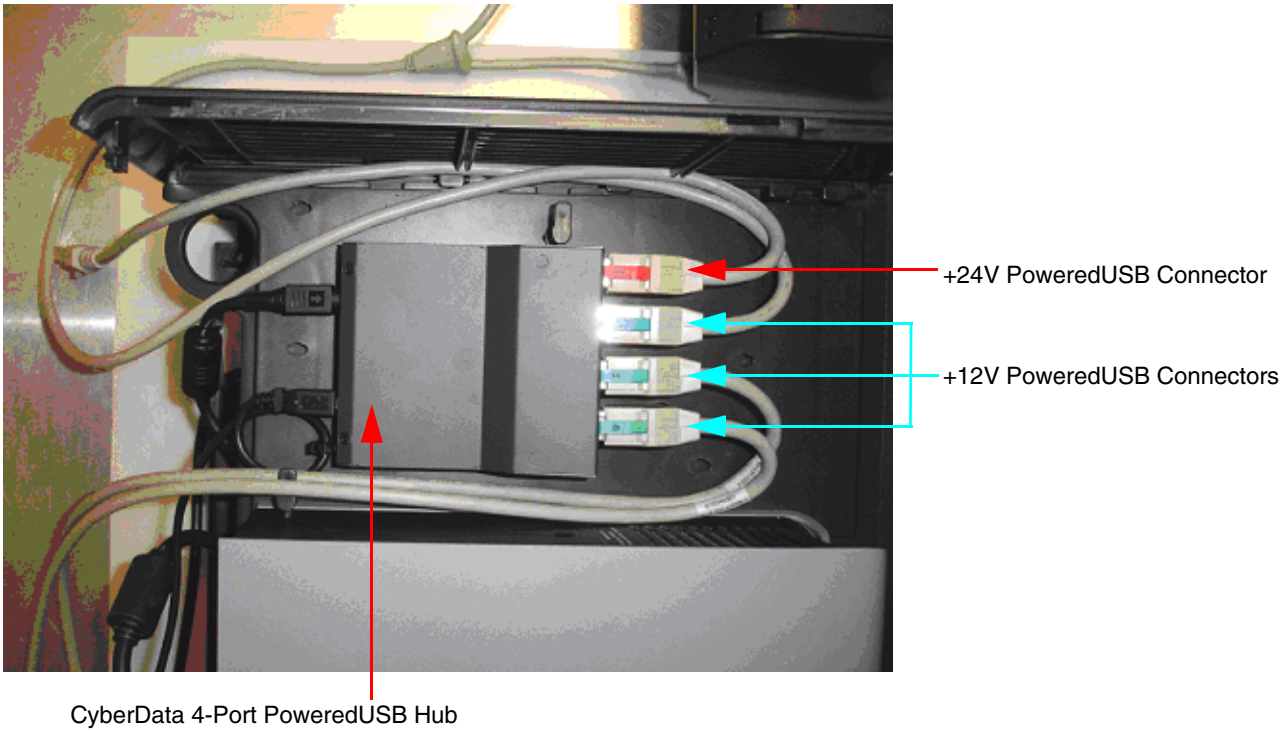


PIN OUT		
Pin	**Signal Description**	
1	Vbus	USB standard “A”
2	D-	USB standard “A”
3	D+	USB standard “A”
4	Ground	USB standard “A”
5	Ground	USB PlusPower
6	Vplus	USB PlusPower
7	Vplus	USB PlusPower
8	Ground	USB PlusPower
Shell	Shield	

Peripherals connections to the CyberData 4-Port PoweredUSB 2.0 Hub

This figure illustrates the cable routing from the CyberData 4-Port PoweredUSB 2.0 Hub to the Dell Retail Integrator.

Figure 9: **Dell Retail Integrator showing Hub PoweredUSB Cable Routing—top view**



Peripheral cable connection options

Figures 10 through 16 provide examples of peripheral cable combinations and connection options for the CyberData 4-Port PoweredUSB 2.0 Hub. The following table provides details about the CyberData PoweredUSB Cables displayed in these figures.

PoweredUSB cable sources

Custom cables of different lengths and colors can be purchased from CyberData as follows:

- Via email: sales@cyberdata.net
- Via phone: Sales (831) 373-2601 Extension 334

CyberData PoweredUSB Cables		
Figure	**PoweredUSB Cable Description**	**CyberData Part Number**
"Figure 10"on page 15	12V to 2x4	010693C
"Figure 11"on page 16	12V to 12V Power Jack	Contact CyberData
"Figure 12"on page 16	24V PoweredUSB to 3-Pin Power Mini-DIN	010631A
"Figure 13"on page 17	24V to "Y" Cable 3-Pin Power Mini-DIN to USB "B"	010714A
"Figure 14"on page 17	12V to "Y" Cable, RS232 and Power Jack	010763
"Figure 15"on page 17	24V to 1x8	010617A
"Figure 16"on page 18	24V to "Y" Cable, RS232 and Power Jack	

Figure 10: **Cable, +12V PoweredUSB to 2x4 PoweredUSB**

Figure 11: **Cables; +12V PoweredUSB to +12V Power Jack and RS-232 to RS-232**

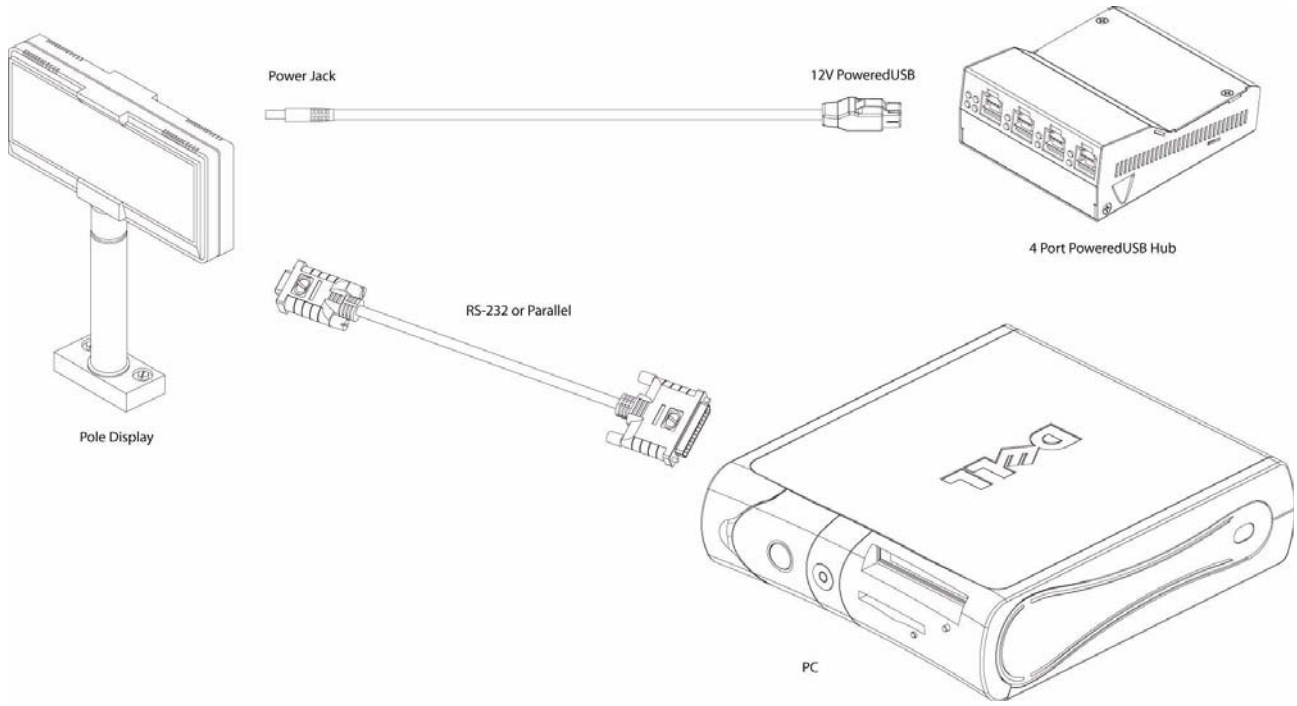


Figure 12: **Cables; +24V PoweredUSB to 3-Pin Mini-DIN and RS-232 to RS-232 or Parallel to Parallel**

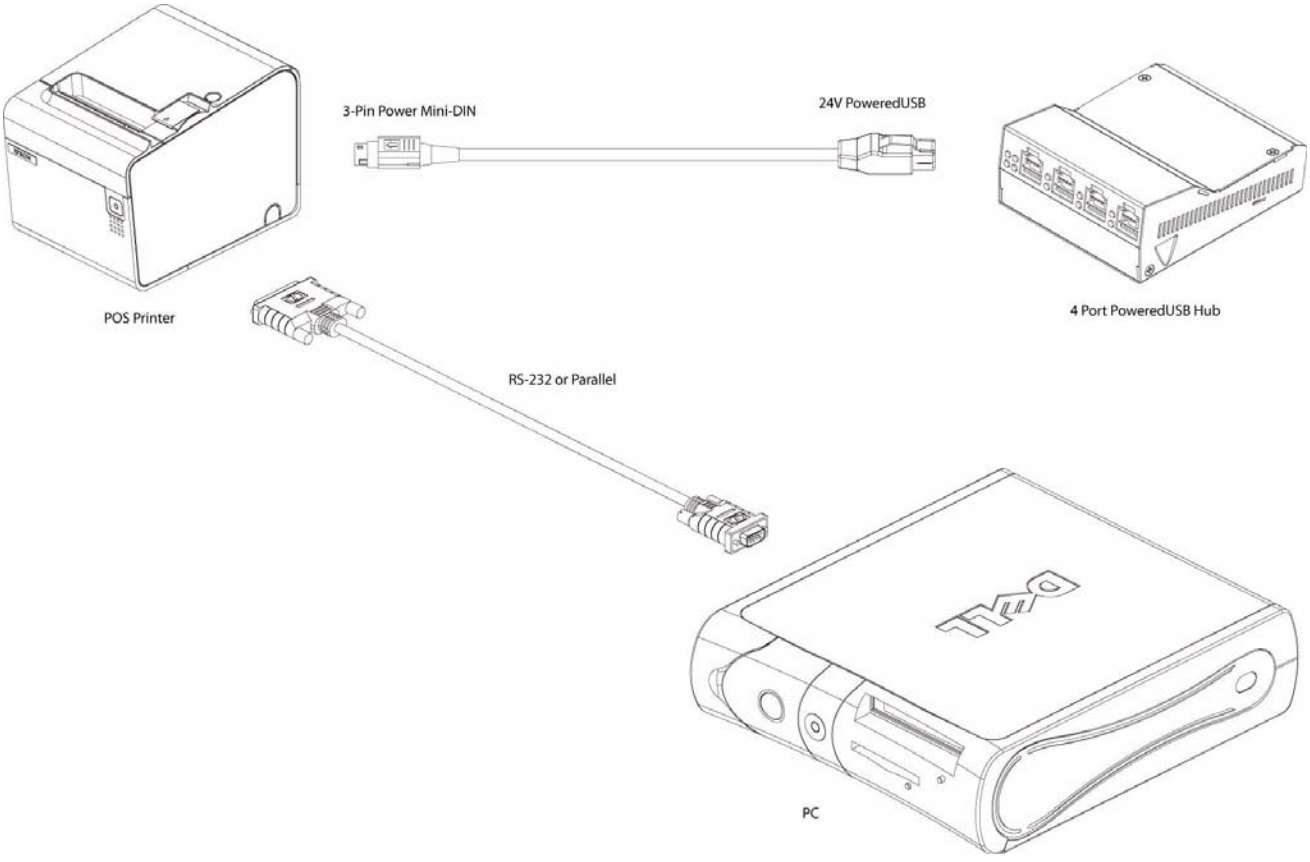


Figure 13: **"Y" Cable, +24V PoweredUSB to 3-Pin Power Mini-DIN and USB "B" Connectors**

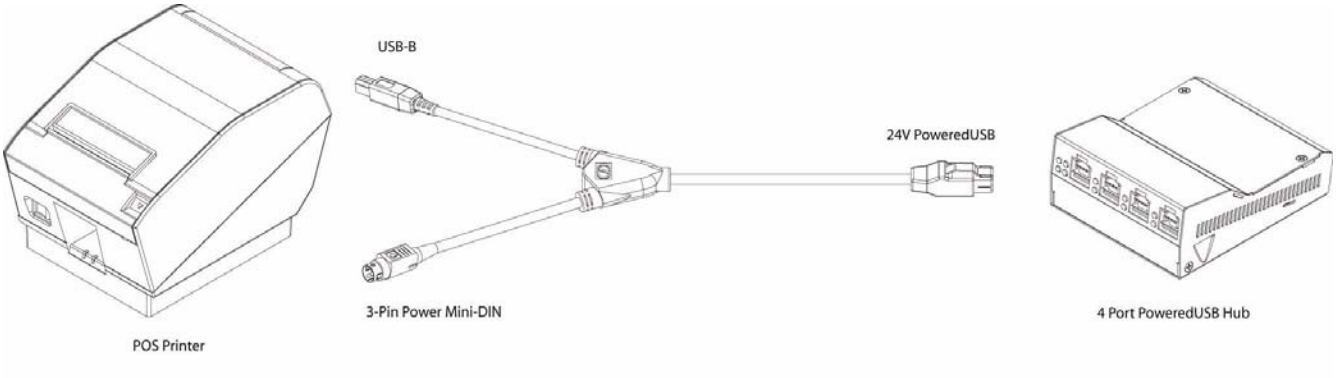


Figure 14: **RS232 to USB Converter "Y" Cable +12V (PC Enumerates this device as an RS-232 COM port)**

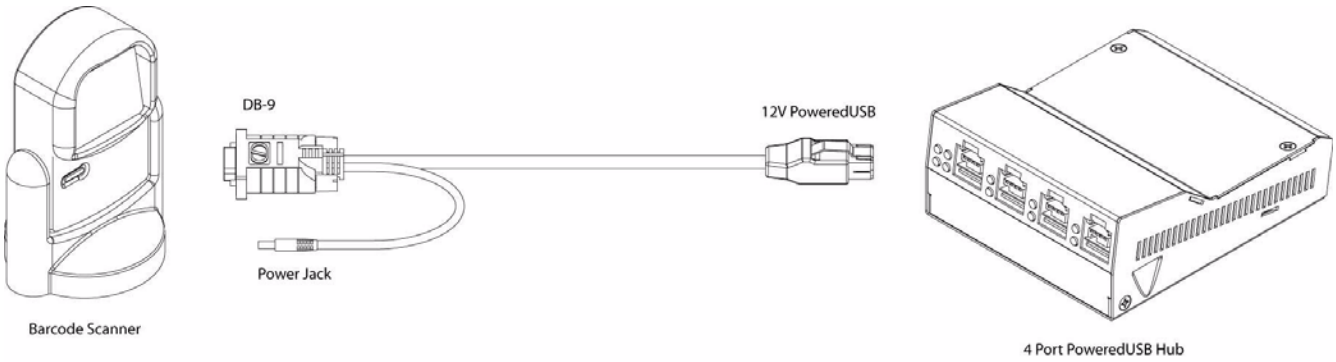
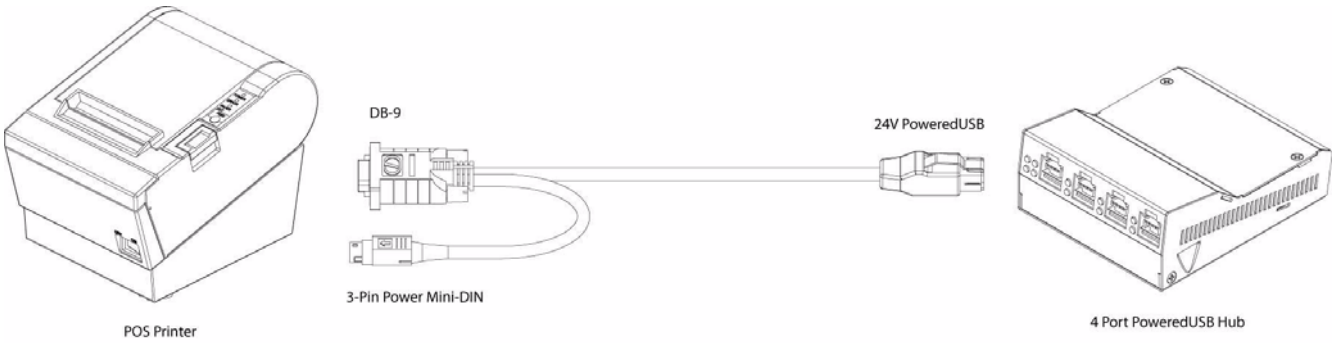


Figure 15: **Cable, +24V PoweredUSB to 1x8 PoweredUSB**

Figure 16: **RS232 to USB Converter "Y" Cable +24V**



Operation

The CyberData 4-Port PoweredUSB 2.0 Hub is a standard USB Hub that complies with the USB 2.0 specification, and adds PoweredUSB ports. When connected to a Host, it is enumerated as a *Generic USB Hub*. This Hub also meets the PoweredUSB .08g specification. For more information about this specification, go to www.poweredusb.org.

POS peripheral caveat

According to the USB 2.0 specification, devices attached to a USB interface should enumerate from the Hub's USB Vbus, regardless of the PoweredUSB powered ports. Some POS devices do not comply with this specification, and will not enumerate unless the upper sections of the PoweredUSB ports are active.

When running on operating systems such as Windows XP with *no* devices attached (an empty Hub), the operating system turns the Hub off. The operating system does not detect non-compliant peripherals when they are hot-plugged into an empty Hub. Consequently PoweredUSB power is not supplied to the peripheral. In this case, you can restore correct operation as follows.

1. Unplug the Host side connection for five seconds, and then plug it in again.
2. Be sure that at least one USB device is plugged in when the computer is booted, or leaves standby mode.
3. Plug in a standard USB compliant device, such as a mouse or keyboard.
4. Disable the low-power, standby operation. With this configuration, power is always supplied to the PoweredUSB ports regardless of the PC's operational state. For more information, contact CyberData as instructed in "Contact Technical Support" on page vi.

Port electrical specifications

The CyberData 4-Port PoweredUSB 2.0 Hub adheres to the USB 2.0 electrical specifications as follows:

Standard USB lower A supply

Each lower portion of the PoweredUSB port provides +5V @ 500mA. If more than 500mA are drawn from a port, that port goes into USB over current, the +5 volts is turned off, and the condition is reported to the host according to USB 2.0 specifications.

PoweredUSB supply

The listed maximum currents depend on the selected power supply. Both the +12V and +24V PoweredUSB ports are protected with active over current circuits. If an over current condition occurs, unplug the DC connection, remove the over current condition, and re-cycle the DC connection to the Hub by unplugging it, and plugging it in again.

- +12V Ports (3) – 1.5A each
- +24V Port (1) – 2.3A

Port electrical specifications

A Regulatory and safety information

Regulatory standards

FCC Statement: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Safety standards

- UL60950-1; Information Technology Equipment
- CSA C22.2 No. 60950-01, Information Technology Equipment
- EN60950-1, Information Technology Equipment
- IEC60950-1, Information Technology Equipment

EMC

For the USA and Canada, this device complies with:

- Title 47 of the CFR, Part 15, Subpart B, Section 15.107(b)
- Title 47 of the CFR, Part 15, Subpart B, Section 15.109 (b)
- ICES-003

CE Declaration of Conformity

This device complies with:

- Directive 89/336/EEC
- EN55022 Class A 1998
  - EN61000-3-2: 2000
  - EN61000-3-3: 1995
- EN55024: 1998
  - EN61000-4-2: 1995
  - EN 61000-4-3:1996
  - EN 61000-4-4: 1995
  - EN 61000-4-5: 1995
  - EN 61000-4-6: 1996
  - EN 61000-4-8: 1993
  - EN 61000-4-11: 1995

B Setting up the Hub on Windows XP

For connecting the CyberData 4-Port PoweredUSB 2.0 Hub to a PC running the Windows XP operating system, keep in mind:

1. Microsoft XP Service Pack 1 or higher must be installed.
2. When connecting the Hub for the first time, it is important to perform the enumeration correctly. A Microsoft XP Service Pack issue does not enumerate and recognize a Hub when no devices are attached to it. To correctly enumerate the CyberData 4-Port PoweredUSB 2.0 Hub, attach a peripheral whose drivers are included in Windows XP, such as a USB mouse, prior to enumerating the Hub. To accomplish this:
   a. Connect a USB mouse to one of the lower, standard USB, Hub ports.
   b. Connect the power cord to the Hub.
   c. With the PC powered up, connect the host control cable from the Hub to a USB port on the PC. Doing so displays the *Found new hardware* dialog, indicating that the PC is searching for drivers for the Hub.
   d. When the PC completes the driver search, it displays the *Found new hardware* dialog, in search of a driver for the mouse. If required, click **Next** in all screens of the wizard to complete the driver selection for the mouse.

At this point, you should be able to plug in and install a USB device provided you have also installed its drivers, or have them available for installation.

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